

THE EFFECT OF PRENATAL AND POST NATAL EXPOSURE TO SECOND HAND SMOKE ON THE DEVELOPMENT OF WHEEZING BEFORE THE AGE OF 2: A EUROPEAN STUDY

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Background-Aim. It has been estimated that at least 700 million children worldwide breathe air polluted by second hand smoke (SHS) at home. We assessed the independent and combined role of prenatal and postnatal exposure to SHS on the development of wheeze in infants before age 2.

Methods. We examined pooled data for 49415 mother-child pairs from 19 birth cohorts in 9 countries participating in the EU funded ENRIECO project (ALSPAC, AMICS-Barcelona, AMICS-Menorca, BAMSE, CONER, DARC, EDEN, Generation R, GINI, INMA Guipuzkoa, INMA Sabadell, INMA Valencia, KOALA, Leicester, LISA, MAS, NINFEA, PIAMA-NHS, and RHEA). Information on prenatal exposure to maternal active smoking, prenatal exposure to SHS (paternal or others smoking in the mother's environment) and postnatal SHS exposure (parents or others smoking in the child's environment) was collected. We used multilevel mixed-effects logistic regression. Complete information on wheeze, active and passive smoking and covariates used in adjusted models was available for 25727 children.

Results. Among non-smoking mothers an increased risk towards the development of wheeze during the first 2 years of life was associated with any exposure to SHS as a fetus and/or during infancy in both the pooled (OR=1.18, 95%CI 1.10-1.27) and in the meta-analysis (OR = 1.16, 1.06-1.26). Increased risks were observed for fetal exposure to SHS only during pregnancy (OR= 1.14, 1.05-1.24) and to children exposed to SHS during both pregnancy and infancy (OR=1.29, 1.18-1.42). Combined active maternal smoking during pregnancy and SHS exposure during infancy led to the highest risks observed (OR=1.76, 1.60-1.93). Approximately 8% of wheeze during the first 2 years in children of non-smoking mothers could be attributed to SHS.

Conclusions. SHS exposure during pregnancy and infancy was associated both mutually and independently with the development of wheeze before the age of 2 indicating the importance of adopting smoke free homes and environments.